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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,518	03/01/2004	James L. Barnard	10,158	1047

7590

11/01/2006

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EXAMINER

PRINCE, FRED G

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,518

Applicant(s)

BARNARD, JAMES L.

Examiner

Fred Prince

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,9,11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13,16 and 17 is/are allowed.
- 6) ☒ Claim(s) 8,9,11,14,15 and 18 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102/103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 11 is again rejected under 35 U.S.C. 102(b) as being anticipated by Lamb, III.

Lamb, III teaches in a process for treating wastewater by mixing the wastewater with biomass (52) to form a mixed liquor a first anaerobic region (54) and thereafter treating the mixed liquor in an aerobic region; the improvement comprising the step of: a) diverting a slip to a second anaerobic region (62, 64, 66) wherein the mixed liquor is subjected to a lower flow rate (col. 9, lines 40-45) than in said first anaerobic region and thereafter returning the mixed liquor (74) from said second anaerobic region to said first anaerobic region.

4. Claims 8, 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamb, III.

Lamb, III discloses flowing wastewater with organic components therein into a first anaerobic region (54) and mixing the wastewater therein with a microorganism biomass to form a mixed liquor; flowing a portion of the mixed liquor into a second anaerobic region (62, 64, 66) wherein said biomass ferments portions of said organic to produce volatile acids (col. 4, lines 67-68; col. 5, lines 1-4); returning liquid from said second anaerobic region (74) with said volatile acids to said first anaerobic region wherein phosphorus is released from the microorganisms (col. 2, lines 7-11; col. 8, lines 60-68; col. 9, lines 1-2) in said mixed liquor and volatile acids are associated with said microorganisms; flowing mixed liquor from said first anaerobic region to an aerobic region (24) wherein said volatile acids are metabolized by said microorganisms and phosphorus is absorbed by said microorganisms (col. 9, lines 2-6); thereafter transferring said mixed liquor (26) to a clarifier region (28) wherein clarified liquid separated from biomass; and returning at least a portion of the separated biomass (44) with phosphorus therein to said first anaerobic region, wherein the solids concentration in the second anaerobic region is greater than 7,000 mg/liter (Table 2). Lamb, III does not explicitly disclose that the acids produced are short chain fatty acids.

In any case, it is submitted that it is well known in that that short chain fatty acids are produced under anaerobic condition and are readily assimilated by microorganisms as they are excellent energy sources and electron donors (see, for example, US pat No 3,939,068 to Wendt et al. or US Pat No 4,696,746 to Ghosh et al.). Accordingly, it would have been readily obvious for the skilled artisan to have modified the process of Lamb, III such that it includes producing short chain fatty acids in order to, for example,

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produce acids that are readily assimilated by microorganisms as they are excellent energy sources and electron donors, as known in the art.

Per claim 9, Lamb, III does not disclose producing a biomass concentration of less than about 4000 mg/liter in the first anaerobic region. It is submitted that the use of a biomass concentration within the recited range lies in the realm of routine optimization of a process-effective variable and accordingly, is insufficient to patentably distinguish the instant invention over the prior art.

5. Claims 14-15 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Lamb et al. in view of Josse et al. (US Pat No 6,531,058).

Lamb, III is described above. Lamb, III does not disclose utilizing upward flow in the second aerobic region such that a biomass blanket is formed near the bottom to near an outflow.

Josse et al. disclose utilizing upward flow in an anaerobic region such that a biomass blanket is formed near the bottom to near an outflow (Fig. 5) in order to, for example, provide cleaner effluent, reduce energy requirements, and provide reliable performance. It would have been readily obvious for the skilled artisan to modify the process of Lamb, III such that it includes utilizing upward flow in an anaerobic region such that a biomass blanket is formed near the bottom to near an outflow in order to, for example, provide cleaner effluent, reduce energy requirements, and provide reliable performance, as suggested by Josse et al.

Response to Arguments

6. Applicant's arguments filed September 6, 2006 have been fully considered but they are not persuasive.

Applicant asserts that claims 11 and 18 define patentable subject matter because the claims require that the wastewater be first be directed to a first anaerobic region and further asserts that the wastewater of Lamb first enters an aerobic region. However, it is noted that applicant's use of "comprising" in the claim preamble does not preclude treatment steps prior to the wastewater being treated in a first anaerobic region.

Further, it is noted that the wastewater of Lamb directly enters a first anaerobic region after leaving region 50. Moreover, there is no aerobic treatment between region 50 and the first anaerobic region. Accordingly, applicant's arguments have been carefully considered but fail to patentably distinguish the instant invention over the prior art.

Allowable Subject Matter

7. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Per claim 19, while claim 18 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or fairly suggest modifying the process of Lamb, III such that it includes the combination of steps recited in claim 19. The

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instant invention provides the advantage of removing a high amount of phosphorus from the influent wastewater and improving short chain fatty acid production.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Prince whose telephone number is (571) 272-1165. The examiner can normally be reached on Monday-Thursday, 6:30-4:00; alt. Fridays 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Fred Prince
Primary Examiner
Art Unit 1724

fgp
10/27/06